

Field Trip No. 1

Northern N.S.W., Darling Downs, Hunter Valley.

Sep. - Nov. 1936

K.H.L. Key

Northern NSW., Darling Downs, Hunter Valley.

Country as far as I saw much the same as Canberra. Beyond Bowring there was more bare ground. Got out just beyond Kinalong & examined the roadsides (bare ground & short grass patches). Found no hoppers.

In Young district there were numerous red-earth patches, and the country was perhaps slightly drier, but not much. Examined roadsides just north of Young: found only a *Tetrigine* on the margin of a pool. Soil evidently more binding <sup>see cond. of road.</sup>

Towards Grenfell the country became distinctly drier, especially somewhat N. of Grenfell. The dominant eucalypt now became a rather tall semi-rough bark, little-peeling, <sup>*E. macrocarpa* or *E. Woodleyana*</sup> ovate-leaved form, and a certain amount of rough-barked <sup>*E. sideroxylon*?</sup> mallee. Range of hills to left of road from before Grenfell for some way beyond. Ground beneath trees practically bare, no hoppers. (Photo 1)

(1st camp)

Site 1

[Description of site 1, 5 km N. of Parker. Top of hill, red earth, stony. Sparse growth of low short grass in left. Few eucalypts. At top in ditch <sup>quite</sup> dry. Soil was cracked, but not yet dry. *Tetrigine* & *Chortoricketes* <sup>*Chortoricketes* *hermannifera*</sup> mainly in this vegetation. *Chortoricketes* all over the place. *Tetrigine* in few much-covered spots.] (Photos 2 & 3)

Side 4. A few miles from Harrison on N-Durham R.R.  
 Grass ca. 1 ft. high on very sandy, light-colored  
 soil beside of railway (fence side) large no. of  
*Chortocetes terminifera* adults and one nymph. Also  
*Pezomachus sciratus*, *Urosia guttulosa*  
*Pezomachus* sp. on the grass. 3 adults of  
 young of *Monistria* adult *Monistria pustulifera* inter *p. pustulosa*  
 and *p. mallee* (R).  
 48 ft by 27 ft in  
 9 longhairs observed 50 adults (high  
 wind, 2 pm, clear sky. (Est. at least 1/50 ft.  
 [Some others must be described.] (Photos 4 & 5)  
 Observed hairs on grass (not back to grass)  
 area. "nature"

A. jingi hoppers (1st - 3d) in depression where  
water had lain. Also some of *Cafan* to observe  
in site 1. These hoppers were older (some in 3rd) than  
any previously seen.

[Between Peak Hill & Narrouine some  
1/2" shrubs had come in; these continued from  
time to time.]

Between Narrouine & Breda a few *Casuarina*  
appeared for the first time.

Almost immediately N. of Dubbo became  
a change in the soil from red to dark red & in  
places approaching black. This was correlated  
with a radical change in the vegetation.  
Very heavy rough, black *Acacia* gum & with  
fine, shiny, lanceolate leaves replaced those  
obtaining since. *Casuarina* the place of *Acacia*  
as well as other scrub up to 6 ft. high  
kind appeared. *Casuarina* much and very  
considerably. ~~Casuarina~~ *Casuarina* ~~very~~  
~~considerable~~. A little further on gums with slightly  
rough non-fil bark like *Acacia* *Acacia*

*Acacia* came in, but the *Acacia* ~~was~~  
of the rough bark type - lanceolate, shiny <sup>(narrow-leaved)</sup> <sub>bon</sub>.

I should not have called any of the soil as  
far as Gilgandra "black" soil. Made a stop  
ca. 1/2 way to G. on suitable-looking ground.  
Found one *hemimifera* (5pm. shaggyish), very few  
hoppers indeed. Chap at hotel confirms this to  
not black soil country.



Observations upon trip so far :-

1. It is noticeable that (1) S. of Parkes, or thereabouts, there were no hibernatic terminifera, or if there were, they were just not noticed. At Parkes there were adults & nymphs, mostly nymphs. At Narranine <sup>(site 4)</sup> adults were numerous, nymphs very rare, & this was true also of Dubbo <sup>(site 5)</sup>. Similarly, at Parkes <sup>(1 & 2)</sup> all jingie nymphs were very small, almost entirely 1st. Same at Peak Hill <sup>(3)</sup>. By Dubbo these nymphs were larger (1st to 3rd) till the Gulargambone infestation prone to be these nymphs larger still? [Not. KK.]

2. Terminifera ~~nymphs~~ adults were found on all soil types (stony red (1), sandy (4), non-stony red (5) & we know they come from black soil country. Egg habits thus do not seem conditioned by soil comp. Note that <sup>usual</sup> areas of prevalence are 1) summer rainfall areas, 2) relatively mild winters, high temp. early spring areas. These cond. permitting (both long season & summer rain) of several annual generations.

3. Terminifera, in its centres of origin, is capable of hibernating, or at least overwintering in very consid. no. in adult or late larval stages. This provides an

alternative means of survival to egg-overwintering. A season favourable to overwintering adults may result in great additions to hoppers nos. ca. Dec., when eggs from these hatch. Such hoppers may thus arise in places where there was no oviposition the previous year, we have to find out whether the adults found near Dubbo are the remnant of scattered swarms of 1935, or the result of a new population increase. In other words 1) were eggs deposited in this area in 1935, 2) was poisoning thorough.

4. No *terninifera* hatching this year from eggs were anywhere observed.

Side-track to Collie - Two new green low-branched trees. One bright-leaved tree <sup>(my photo)</sup> <sup>(Kurralong)</sup> <sup>(my photo)</sup> <sup>(Kurralong)</sup> These much more mixed.

Gilg. to Coon. Few off trees seen to Collie. Gumms tall + slender + dense. <sup>(my photo)</sup> Many *Callitris*. Toward hills ~~are~~ bright-leaved tree much in evidence.

Steb. <sup>1</sup>/<sub>2</sub> way to Coon. Scattered adult term. Beet. No hoppers. Roadside, red sandy earth, scattered low spreading grass. Leica 6

Very little beyond here we began to climb the hills, the soil became blackish

site 7.

<sup>*Asiophorus bannulus*, *Chortociclus terminifera*</sup>  
 Perhaps 5 mi or beyond site 6. Soil dark,  
 pasture very short, heavily grazed. Plenty of  
 term. adults - ca. twice as numerous as  
 near Dubbo. No nymphs observed but not looked  
 for carefully. Trees mostly ring barked.  
~~Site~~ Leica 7-X2.9

Reached Coon, where Mel. had just arrived.  
 joined P.P. meeting & made notes (gm).  
 Examined properties of Bugaldie & Goorianawa.  
 Property of Mel. & Minnie was most heavily infested.  
 There were flies, ca. as dense as in site 7 or  
 denser. Numbers of these were laying eggs in  
~~hard~~ <sup>firm</sup> soil, but easily broken with knife.  
 At same time there were hatchlings all round,  
 and dense aggregations of hoppers almost  
 completely covering the ground for areas a  
 few yards square. Several such areas in a  
 large slightly sloping, short pasture paddock.  
 At Goorianawa infestation was lighter,  
 but more extensive. Birds had been at  
 work. Large area covered. A different hopper,  
 either *Oedalus* or *Gastromargus* was observed  
 in small nos. on this area in 1st instar.  
 Further on there was a paddock with a few  
 infested patches where I took Leica 11.

Wednesday

Proceeded to various points near Paradise,  
 among Pilliga scrub (*Callitris*). A few



hatching hoppers observed. In another property saw them fairly thick on margins of creek (Leica 12). Baiting had been carried out. Second (smaller) collection of young hoppers made here. Passed through gap in Warrumbungle & reached Goorianawa. Black soil country from here to Coonamble. Good property had largest groups of hoppers yet encountered, covering patches perhaps 10yds long in several places. They were confined to "red soil ridges" in the middle of the black soil country, where there were "scalded" patches, which seem to be a variable characteristic of large egg-beds. The typical soil is not very hard or binding, but firm sandy red soil, easily broken with a knife. (Leica 13-15). Further on we reached more typical egg-bed country, which, however, had no extensive hatch. Small nos. of term., *pingi* & *pusilla*. Leica (16 & 17). On road to Coonamble another spot was encountered on purely black soil where adults were perhaps more numerous than in any previous site were pairing extensively (4 pm).

McCarthy regards this as an extremely



light infestation - nothing to worry about. Many hoppers would die of starvation unless there were rain. He feared no outbreak.

### General impressions:-

Trip was designed to enable me to be shown the hoppers with M.C. It was quite unduly hurried. In such cases of hurry camping is out of question. No good purpose would be served by further visits except with a definite experimental plan to cover a long period. Camping would only be desirable if travelling short distances. Equipment must be cut down if poss, & dust eliminated.

10 gals. Forbes 2/3  
7 " Gilgandra 2/3  
7 " Coonabar. 2/3  
23/9 5 " Paradise 2/3

24/9 48 gals Coonamble 2/3

25/9 78 gals Gillareebri

26/9 38 gals ~~Paradise~~ Mungindi 2/5

21-22/9 Supper, bed & b. Gilgandra rept. 22/9  
22-23/9 lunch, supper, breakfast Coon.  
23-4/9. supper, bed & b. Coonamble  
24/9 lunch Coon 2/6 phone 4/5 wire 1/9.

24/9

Meeting P. Board at 8 am. Same tale of  
flies all thro' winter, but this was "extensive"  
(ask McC.) in SE & SW. etc.

Site 8

Camp ca. 20 mi N. of ... black  
soil, sparse grass, some low semi-succulent  
dicts. A very few adult term., a few *Perilyptus*  
nymphs some adult male recently mature  
(my photo of cat)

Site 9

Two 100 yds. further on. Soiled patches of  
light-colored soil with growth of mainly  
*Helictes*. Numerous small hoppers in quite  
dense nos. <sup>*Austroicetes pusilla*</sup> Taken about 100 yds. further on. One advanced  
juv. nymph. Same vegetation term. as in site 8.  
Soil sample. [Heica A?]

Site 10

A little further on, on sandy soil where  
there was a much higher density of term.  
<sup>*Chortorictes tenuifera*</sup> <sup>to this</sup> as numerous as anywhere else. Taken about  
*Perilyptus* sp. n., *Diolopus hamulus*  
*Perilyptus* - in nymphs.

Higher than ...

Country from ... to ... becomes  
progressively drier. Trees become fewer &  
shorter (<sup>coolibah</sup> ca. 25 - 30 ft av.). In places ground is  
very sparsely covered, in others fairly thick with  
low semi-succulent, in others thick with high  
tufted grass (<sup>Mitchell</sup> 2 ft.) Apparently term. in this  
high grass country, however, it is dry. *C. term.*  
as scattered adults throughout whole distance  
from ... to ...

side 11

*Chortorietes tenuifera*

$\frac{1}{2} - \frac{1}{3}$  of ... (18 minutes)

The ... (very, the last ...)

side 12

*Cedrus sp.* ... *Chortorietes tenuifera*

base ... *Chortorietes tenuifera* ... *Ovalletta maculata*

side 13

The ... (very, the last ...)







## Reflections

If I did not feel something for the  
 thing I am in the school at an  
 in a hall of the



*Trigonostoma quadrilobum*

*Moraba cultrata carissima* (R), *Trigonostoma quadrilobum*

*Trigonostoma quadrilobum* (R), *Trigonostoma quadrilobum*

*Choristocentrus tenuifera*

*Trigonostoma quadrilobum* (R), *Trigonostoma quadrilobum*

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*Trigonostoma quadrilobum* (R), *Trigonostoma quadrilobum*

*Trigonostoma quadrilobum* (R), *Trigonostoma quadrilobum*





11-11-11

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and the other two being the same. The first is a  
 red granite, the second is a dark granite, and the third  
 is a light granite. The first is the most common, and the  
 second is the most beautiful. The third is the most  
 valuable. The first is the most common, and the second  
 is the most beautiful. The third is the most valuable.

The first is the most common, and the second  
 is the most beautiful. The third is the most valuable.  
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 The first is the most common, and the second  
 is the most beautiful. The third is the most valuable.

The first of these is the fact that the  
 number of cases of the disease has  
 been increasing steadily since the  
 beginning of the year. This is due  
 to the fact that the disease is  
 more prevalent in the winter months  
 and the weather is now becoming  
 colder. The second fact is that the  
 disease is more prevalent in the  
 lower classes of the community.  
 This is due to the fact that the  
 lower classes are more crowded and  
 have less access to clean water and  
 food. The third fact is that the  
 disease is more prevalent in the  
 cities than in the country. This is  
 due to the fact that the cities are  
 more crowded and have less access  
 to clean water and food. The fourth  
 fact is that the disease is more  
 prevalent in the winter months than  
 in the summer months. This is due  
 to the fact that the weather is  
 colder in the winter months and the  
 disease is more prevalent in the  
 winter months. The fifth fact is  
 that the disease is more prevalent  
 in the lower classes of the community  
 than in the upper classes. This is  
 due to the fact that the lower classes  
 are more crowded and have less  
 access to clean water and food.

Site 85



(Leica 33 + 34: - Swarms in flight, put up from  
eggs.)

1934 (as reported by the author)

Sep. 28<sup>th</sup>: Same as before, but cloudy, Calm.

Ant. *Eulophus* *procerus* d. 10.

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[Summary of the above information]  
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Oct. 7th: [Tracy, Fowler & Co. ...]  
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The first thing I noticed when I stepped  
 out of the car was a cool breeze. It felt like  
 a warm blanket after a long drive. The sun was  
 just setting, painting the sky in shades of orange  
 and pink. The trees were silhouetted against the  
 bright light, creating a beautiful scene. I took a  
 deep breath and felt a sense of peace. The world  
 seemed to be in a state of calm. I walked  
 slowly, enjoying the view. The path was well-  
 lit, and the ground was soft. I felt like I was  
 in a dream. The air was fresh, and the  
 sounds of nature were everywhere. I was  
 alone, but I felt like I was part of something  
 big. The night was young, and the stars were  
 just beginning to appear. I was in luck.

On the way home, I saw a beautiful sunset.  
 The sun was low on the horizon, and the sky  
 was a mix of orange, yellow, and red. The  
 clouds were thin and wispy, and the water was  
 calm. I was in luck. The night was young, and  
 the stars were just beginning to appear. I was  
 alone, but I felt like I was part of something  
 big. The air was fresh, and the sounds of nature  
 were everywhere. I was in luck.

*Choristocites tenuifera*, *Austroicetes*  
*pusilla*

*Choristocites tenuifera*





*Moraba cultrata carissima* (R.), the most beautiful of the  
 collection, and the most beautiful of the collection.

(sample 36a)

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37

36b

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36











Report on the E. W. 2nd

1. 9th. 2nd ed. (1st. 1st. 1st.)
2. 1st. 1st. 1st. (1st. 1st. 1st.)
3. 1st. 1st. 1st. 1st. (1st. 1st. 1st.)
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Sep. 1935. Koorag, Japan. (The name of the place is not clear.)  
 [The name of the place is not clear.]

[The name of the place is not clear.]  
 [The name of the place is not clear.]  
 [The name of the place is not clear.]

Yamanaka (Japan)  
 Oct. 1935. A place in the mountains of Yamanaka (Japan)  
 before the Nishizawa river, near the town of Tera  
 before the Nishizawa river, near the town of Tera  
 11. 10. 1935. Yamanaka (Japan)

[The name of the place is not clear.]  
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(Yashri.)

Nov 1941

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winter garden

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Rep of the Committee -

1. The first step is to identify the problem or question that needs to be answered. This involves understanding the context and the specific requirements of the task.

Mr. J. B. L. L.

1/2

11/1/78 ✓

1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33. 34. 35. 36. 37. 38. 39. 40. 41. 42. 43. 44. 45. 46. 47. 48. 49. 50. 51. 52. 53. 54. 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. 71. 72. 73. 74. 75. 76. 77. 78. 79. 80. 81. 82. 83. 84. 85. 86. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96. 97. 98. 99. 100. 101. 102. 103. 104. 105. 106. 107. 108. 109. 110. 111. 112. 113. 114. 115. 116. 117. 118. 119. 120. 121. 122. 123. 124. 125. 126. 127. 128. 129. 130. 131. 132. 133. 134. 135. 136. 137. 138. 139. 140. 141. 142. 143. 144. 145. 146. 147. 148. 149. 150. 151. 152. 153. 154. 155. 156. 157. 158. 159. 160. 161. 162. 163. 164. 165. 166. 167. 168. 169. 170. 171. 172. 173. 174. 175. 176. 177. 178. 179. 180. 181. 182. 183. 184. 185. 186. 187. 188. 189. 190. 191. 192. 193. 194. 195. 196. 197. 198. 199. 200. 201. 202. 203. 204. 205. 206. 207. 208. 209. 210. 211. 212. 213. 214. 215. 216. 217. 218. 219. 220. 221. 222. 223. 224. 225. 226. 227. 228. 229. 230. 231. 232. 233. 234. 235. 236. 237. 238. 239. 240. 241. 242. 243. 244. 245. 246. 247. 248. 249. 250. 251. 252. 253. 254. 255. 256. 257. 258. 259. 260. 261. 262. 263. 264. 265. 266. 267. 268. 269. 270. 271. 272. 273. 274. 275. 276. 277. 278. 279. 280. 281. 282. 283. 284. 285. 286. 287. 288. 289. 290. 291. 292. 293. 294. 295. 296. 297. 298. 299. 300. 301. 302. 303. 304. 305. 306. 307. 308. 309. 310. 311. 312. 313. 314. 315. 316. 317. 318. 319. 320. 321. 322. 323. 324. 325. 326. 327. 328. 329. 330. 331. 332. 333. 334. 335. 336. 337. 338. 339. 340. 341. 342. 343. 344. 345. 346. 347. 348. 349. 350. 351. 352. 353. 354. 355. 356. 357. 358. 359. 360. 361. 362. 363. 364. 365. 366. 367. 368. 369. 370. 371. 372. 373. 374. 375. 376. 377. 378. 379. 380. 381. 382. 383. 384. 385. 386. 387. 388. 389. 390. 391. 392. 393. 394. 395. 396. 397. 398. 399. 400. 401. 402. 403. 404. 405. 406. 407. 408. 409. 410. 411. 412. 413. 414. 415. 416. 417. 418. 419. 420. 421. 422. 423. 424. 425. 426. 427. 428. 429. 430. 431. 432. 433. 434. 435. 436. 437. 438. 439. 440. 441. 442. 443. 444. 445. 446. 447. 448. 449. 450. 451. 452. 453. 454. 455. 456. 457. 458. 459. 460. 461. 462. 463. 464. 465. 466. 467. 468. 469. 470. 471. 472. 473. 474. 475. 476. 477. 478. 479. 480. 481. 482. 483. 484. 485. 486. 487. 488. 489. 490. 491. 492. 493. 494. 495. 496. 497. 498. 499. 500. 501. 502. 503. 504. 505. 506. 507. 508. 509. 510. 511. 512. 513. 514. 515. 516. 517. 518. 519. 520. 521. 522. 523. 524. 525. 526. 527. 528. 529. 530. 531. 532. 533. 534. 535. 536. 537. 538. 539. 540. 541. 542. 543. 544. 545. 546. 547. 548. 549. 550. 551. 552. 553. 554. 555. 556. 557. 558. 559. 560. 561. 562. 563. 564. 565. 566. 567. 568. 569. 570. 571. 572. 573. 574. 575. 576. 577. 578. 579. 580. 581. 582. 583. 584. 585. 586. 587. 588. 589. 590. 591. 592. 593. 594. 595. 596. 597. 598. 599. 600. 601. 602. 603. 604. 605. 606. 607. 608. 609. 610. 611. 612. 613. 614. 615. 616. 617. 618. 619. 620. 621. 622. 623. 624. 625. 626. 627. 628. 629. 630. 631. 632. 633. 634. 635. 636. 637. 638. 639. 640. 641. 642. 643. 644. 645. 646. 647. 648. 649. 650. 651. 652. 653. 654. 655. 656. 657. 658. 659. 660. 661. 662. 663. 664. 665. 666. 667. 668. 669. 670. 671. 672. 673. 674. 675. 676. 677. 678. 679. 680. 681. 682. 683. 684. 685. 686. 687. 688. 689. 690. 691. 692. 693. 694. 695. 696. 697. 698. 699. 700. 701. 702. 703. 704. 705. 706. 707. 708. 709. 710. 711. 712. 713. 714. 715. 716. 717. 718. 719. 720. 721. 722. 723. 724. 725. 726. 727. 728. 729. 730. 731. 732. 733. 734. 735. 736. 737. 738. 739. 740. 741. 742. 743. 744. 745. 746. 747. 748. 749. 750. 751. 752. 753. 754. 755. 756. 757. 758. 759. 760. 761. 762. 763. 764. 765. 766. 767. 768. 769. 770. 771. 772. 773. 774. 775. 776. 777. 778. 779. 780. 781. 782. 783. 784. 785. 786. 787. 788. 789. 790. 791. 792. 793. 794. 795. 796. 797. 798. 799. 800. 801. 802. 803. 804. 805. 806. 807. 808. 809. 810. 811. 812. 813. 814. 815. 816. 817. 818. 819. 820. 821. 822. 823. 824. 825. 826. 827. 828. 829. 830. 831. 832. 833. 834. 835. 836. 837. 838. 839. 840. 84

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7/11/19

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11/20/34 - 1/20/34 - 1/20/34



... of ... ..  
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Feb. 5. ... ..  
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Nov. 12 ... ..  
 On Texas - ... ..  
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[Whitaker - 10 mi. S of Seattle, on  
E of 100th, a 1/2 mile. from the  
W of the main highway - 1/2 mi.  
from the highway.]

S.T.

[Whitaker - Making a full soil sample for  
analysis. The soil is a light brown  
silt loam, as indicated by the color.  
S. of latitude 22° 5', 100th St. N. of  
the main highway. 1/2 mi. S of  
the highway.]

Open field, soil made from loess. 1/2 mi.  
Main road. Broadly flat.  
Soil classification: Caliche.



*Excerpt from...*

The ... - 3 ...

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*Persea indica*

*Platycodon grandiflorus* L.

*Persea indica* L.

*Persea indica* L.

*Adiantum caudatum* L.

*Tasmanian* *microphylla* L.

*Adiantum caudatum* L.

*Adiantum caudatum* L.

*Crataegus mollis* L.

*Chrysomelidae* <sup>1944</sup> *Chrysomelidae* *Chrysomelidae*

*Chrysomelidae* *Chrysomelidae* *Chrysomelidae* *Chrysomelidae*

*Chrysomelidae* *Chrysomelidae* *Chrysomelidae* *Chrysomelidae*

*Chrysomelidae* *Chrysomelidae* *Chrysomelidae* *Chrysomelidae*

35,



The day was very hot and the sun was  
 shining brightly. The wind was blowing  
 from the north. The water was very  
 calm. The sky was blue with a few  
 white clouds. The birds were singing  
 and the flowers were blooming. The  
 children were playing in the park.

On the 17th day of the month of the 33rd year of the  
 reign of the Emperor of the Great  
 Han, a small number of Qin people.

A large number of people were gathered  
 at the temple of the Great Han. The  
 people were very happy and were  
 singing and dancing. The children  
 were playing in the park.

From the temple of the Great Han, the  
 people went to the temple of the  
 Great Han. The people were very  
 happy and were singing and dancing.  
 The children were playing in the park.  
 The people were very happy and were  
 singing and dancing. The children  
 were playing in the park.

About 7500 dark horses were sent  
 to the king of the Great Han. The  
 king was very happy and was  
 sending the horses to the king of the  
 Great Han.

Shabby after a long journey  
 of 100 miles till 97 miles a pretty  
 good one.

(upper road)

[Middle - Sandy loam to siltstone from  
 - glauconite. Below is heavy siltstone  
 soil below is heavier (heavy sandy loam),  
 which passes into heavier dark grey  
 soil with a little siltstone. <sup>Ca. 2ms. W of</sup> 3 mi. N  
 beyond siltstone extending to Kumbungu  
 to begin then is sandy loam similar to  
 siltstone extending to Gondi. Gondi  
 is medium grey. Going N along line ~~to~~  
 same as Gondi for 7 ms. Then for 10  
 ms. sandy loam, which also predominates  
 along the road to within 2 ms. of  
 Tumbuka, where black soil begins.  
 However, N of road there is mostly  
 black soil from Kumbungu. Black soil  
 extends to the road, then red to Tumbuka.  
 The road runs to West. Ok, Uganda & Gondi.  
 Raw said from hill as far as 5 ms before  
 Kumbungu. Kumbungu to Uganda mostly sandy  
 loam (see map) south to Gondi.  
 N of Kumbungu to Gondi is heavy  
 black siltstone country.  
 Inland is Kumbungu









Zone 1.5 (1850 ft) sandy, brown, with  
 fine, light brown, clayey, silty, sandy  
 sand. 2-3 in. 10ms. Then a  
 13ms. mostly fine, silty, sandy, with a lot  
 of brown. Then a few inches of fine  
 white sand with a few grains, followed by  
 light gray, silty, sandy, brown  
 siltstone. All way from 1850 to 1860  
 heavily indurated. Large cleavage, and  
 siltstone (about 1850 ft). Partly (1850)  
 sandy, with some, and a few, and  
 7ms out from 1850, and a few, to  
 6ms for ca. 2-3ms. Then a little black,  
 with a few, and a few, and a few, at  
 17ms. At 20ms. found a few, (ca. 20ms)  
 siltstone, and a few, and a few, at 25ms. A  
 lot of, and a few, and a few, at 29ms.  
 Sandridge at 30ms. Lighter black, and  
 between. Sandridge at 31ms. Now more  
 sandy, and a few, and a few, and a few,  
 ends at 32ms. The upper, and a few,  
 light gray, 10ms to 15ms, black, and  
 plain, and a few, and a few, and a few,

extensive mapping of the area  
all over from 1870 to 1880



to about 24. good luck. To see for  
 the same.

91.2. Pond ridge.

Dark grey to 2/3. Rock.

Summer down with summer and  
 the creek, off above the top of the  
 creek and the creek bank,  
 the pale, below, and the  
 the summer and the creek bank  
 the creek bank and the creek bank 97.

100. The creek bank and the creek bank  
 the creek bank.

Very small blk patch at 101.2 - followed  
 by the creek bank. The creek bank  
 the creek bank - 102. then the creek bank  
 the creek bank and the creek bank  
 the creek bank.

5.5. summer blk soil, open summer

to 8. very heavy blk, from the creek  
 in the creek bank.

10. The creek bank and the creek bank

11.6. Tuberosa kniffe.

very heavy blk-brown, from 101.1 to 11.6.

- 48.5. Thin open alk soil plain in scattered  
 groups here. N.B. W. 17.  
 48.5. Salt and terraces of trees  
 26.6 sand ridge  
 31.3 Sandy loam ridge at back  
 32.1. Timber in extensive unglaciated area. Soil  
 as before. Below ridge periglacial  
 37.1 Small crest ridge then dark grey <sup>clay</sup>  
 with groups of Yellow Pines.  
 38.3. Sand ridge.  
 39. sand ridge. Sandy loam to upper  
 savannah of Monks Bay Aik.  
 41. Dark grey.  
 42.3. Sand ridge.  
 43.6. Black soil, nearly level plain in 3-4 ft.  
 across.  
 49.4. Gooderood ridge.  
 Sandy loam.  
 51.2. Dark grey - open thorn acacia savannah.  
 52.2. Sandy loam.  
 54. Dark grey to black - good pasture.  
 56.0. 1/2 miles.





[The ... ..]

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- Dark brown soil - upper part of the  
 section is not quite  
 so dark and rich - but the same  
 soil is found below  
 10.5. The soil is dark brown  
 and is very rich in organic matter  
 and is very fertile. The soil is  
 very dark brown and is very  
 rich in organic matter and is  
 very fertile. The soil is very  
 dark brown and is very rich in  
 organic matter and is very fertile.  
 17.1. The soil is dark brown  
 and is very rich in organic matter  
 and is very fertile. The soil is  
 very dark brown and is very  
 rich in organic matter and is  
 very fertile. The soil is very  
 dark brown and is very rich in  
 organic matter and is very fertile.  
 21.7. The soil is dark brown  
 and is very rich in organic matter  
 and is very fertile. The soil is  
 very dark brown and is very  
 rich in organic matter and is  
 very fertile. The soil is very  
 dark brown and is very rich in  
 organic matter and is very fertile.  
 22. The soil is dark brown  
 and is very rich in organic matter  
 and is very fertile. The soil is  
 very dark brown and is very  
 rich in organic matter and is  
 very fertile. The soil is very  
 dark brown and is very rich in  
 organic matter and is very fertile.  
 25. <sup>ext 43</sup> The soil is dark brown  
 and is very rich in organic matter  
 and is very fertile. The soil is  
 very dark brown and is very  
 rich in organic matter and is  
 very fertile. The soil is very  
 dark brown and is very rich in  
 organic matter and is very fertile.



*Hordeum murinum* L. (barley grass)

last year



I have been very busy with the  
 district. I have been very busy with the  
 district. I have been very busy with the

on the 1st of the month. I have been very busy with the  
 district. I have been very busy with the

(prob. 1st of the month). I have been very busy with the  
 district. I have been very busy with the

on the 1st of the month. I have been very busy with the  
 district. I have been very busy with the

under the N. of the district. I have been very busy with the  
 district. I have been very busy with the

1924. I have been very busy with the  
 district. I have been very busy with the

on the 1st of the month. I have been very busy with the  
 district. I have been very busy with the

of the district. I have been very busy with the  
 district. I have been very busy with the

has been very busy with the  
 district. I have been very busy with the

5th. I have been very busy with the  
 district. I have been very busy with the

of the district. I have been very busy with the  
 district. I have been very busy with the





11. 10. 1900. 1900.

12. 10. 1900. 1900.

13. 10. 1900. 1900.

14. 10. 1900. 1900.

15. 10. 1900. 1900.

16. 10. 1900. 1900.

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21. 10. 1900. 1900.

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24. 10. 1900. 1900.

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30. 10. 1900. 1900.

31. 10. 1900. 1900.

32. 10. 1900. 1900.

33. 10. 1900. 1900.

scriptus, genus no. 2, Austroicetes pusilla

30.2 Chalk ...

30.3

30.4 ... on medium ...  
 30.5 ...  
 30.6 ...  
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 30.49 ...  
 30.50 ...

48.1. 1891. 1st. 1st.

48.2. 1891. 2nd. 1st.

48.3. 1891. 3rd. 1st.

48.4. 1891. 4th. 1st.

48.5. 1891. 5th. 1st.

48.6. 1891. 6th. 1st.

48.7. 1891. 7th. 1st.

48.8. 1891. 8th. 1st.

48.9. 1891. 9th. 1st.

48.10. 1891. 10th. 1st.

48.11. 1891. 11th. 1st.

48.12. 1891. 12th. 1st.

48.13. 1891. 13th. 1st.

48.14. 1891. 14th. 1st.

48.15. 1891. 15th. 1st.

48.16. 1891. 16th. 1st.

48.17. 1891. 17th. 1st.

48.18. 1891. 18th. 1st.

48.19. 1891. 19th. 1st.

48.20. 1891. 20th. 1st.

48.21. 1891. 21st. 1st.

48.22. 1891. 22nd. 1st.

48.23. 1891. 23rd. 1st.

48.24. 1891. 24th. 1st.

48.25. 1891. 25th. 1st.



100. *Phrynosoma hernandesi* (Lacépède)

101. *Phrynosoma hernandesi* (Lacépède)

102. *Phrynosoma hernandesi* (Lacépède)

103. *Phrynosoma hernandesi* (Lacépède)

104. *Phrynosoma hernandesi* (Lacépède)

105. *Phrynosoma hernandesi* (Lacépède)

106. *Phrynosoma hernandesi* (Lacépède)

107. *Phrynosoma hernandesi* (Lacépède)

108. *Phrynosoma hernandesi* (Lacépède)

109. *Phrynosoma hernandesi* (Lacépède)

110. *Phrynosoma hernandesi* (Lacépède)

111. *Phrynosoma hernandesi* (Lacépède)

112. *Phrynosoma hernandesi* (Lacépède)

113. *Phrynosoma hernandesi* (Lacépède)

114. *Phrynosoma hernandesi* (Lacépède)

115. *Phrynosoma hernandesi* (Lacépède)

116. *Phrynosoma hernandesi* (Lacépède)

117. *Phrynosoma hernandesi* (Lacépède)

118. *Phrynosoma hernandesi* (Lacépède)

119. *Phrynosoma hernandesi* (Lacépède)

120. *Phrynosoma hernandesi* (Lacépède)

121. *Phrynosoma hernandesi* (Lacépède)

122. *Phrynosoma hernandesi* (Lacépède)







26.  $\leq 10$  10

(1) white (red etc.)

1/2" ...

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Site 57

69. 1000 ft.   
 Tipu grass

Praschulus

Tipu grass

71. 1000 ft.

72. 1000 ft.

73. 1000 ft.

74. 1000 ft.

75. 1000 ft.

76. 1000 ft.

77. 1000 ft.

78. 1000 ft.

79. 1000 ft.

80. 1000 ft.

81. 1000 ft.

82. 1000 ft.

83. 1000 ft.

May 1900  
 The day was very hot & sunny & wind  
 SE 9

The day was very hot & sunny & wind  
 SE 9  
 The day was very hot & sunny & wind  
 SE 9  
 The day was very hot & sunny & wind  
 SE 9

Ch. 37 and 38. The day was very hot & sunny & wind  
 SE 9  
 The day was very hot & sunny & wind  
 SE 9  
 The day was very hot & sunny & wind  
 SE 9

59a. *Epilobium*







The first thing I noticed  
 when I stepped out of the car  
 was the cold, crisp air. It felt  
 like a fresh blanket. The sun  
 was shining brightly, and the  
 birds were singing. I took a  
 deep breath and felt a sense of  
 peace. The world was so beautiful,  
 and I was so lucky to be here.  
 I walked down the path, feeling  
 the grass under my feet. The  
 flowers were in full bloom, and  
 the colors were so vibrant. I  
 stopped for a moment to look  
 at the sky. The clouds were  
 white and fluffy, and the sun  
 was so bright. I felt like I  
 was in a dream. The world was  
 so perfect, and I was so happy.  
 I took another deep breath and  
 felt a sense of joy. The world  
 was so beautiful, and I was so  
 lucky to be here.

Botanical notes:-

Kolly-pallies. - ordinary, Bassia quinqueclausis,  
 F.v.M.; galwanised, Bassia birchii, F.v.M.  
 Grass from site 44: barley grass, Hordeum  
murinum, L.

Local yellow Helichrysum on which Perunga  
 was found: Helichrysum apiculatum (Labille)  
 D.C.



For heretofore names of  
photos in material  
relating to Bulletin 156  
(Published as Pl. 4. fig. 2 of  
that Bull.)





24.

29.

23.

28.

22.

27.

25.

For "Leica A" see series of  
photos in material  
relating to Bulletin 186  
(Published as Pl. 4, fig. 2 of  
that Bull.)

Leica 23 1/2 in. 1/2 in. 1/2 in. 1/2 in.  
of 1/2 in. 1/2 in. 1/2 in. 1/2 in.  
1/2 in. 1/2 in. 1/2 in. 1/2 in.



3.

37.

Egg-laid on sand, 10 ft.  
at Point, 10 miles N. Oct. 1936.

35.

Leica 33. Swam in flight, put up  
from egg-bed.

34.

33.

32.

Leica 32. 10 ft. 10 ft.  
5 ft. 10 ft.

31.

30.

Leica 31. 10 ft. 10 ft.  
10 ft. 10 ft. 10 ft. 10 ft.  
10 ft. 10 ft. 10 ft. 10 ft.  
10 ft. 10 ft. 10 ft. 10 ft.

Leica 30. 10 ft. 10 ft.







5.

Leica 4. Site 4, a few miles E. of  
Warrenburg. Numerous or-  
adult of termitifera. 21/9/36.

10.

Leica 9: Site 7. (see Leica 7 & 8)

4.

Leica 3. Close-up of depression  
at Parkes (see Leica 2)

9.

Leica 8: Site 7. Numerous  
adult termitifera.

6.

Leica 5: Close up of same.

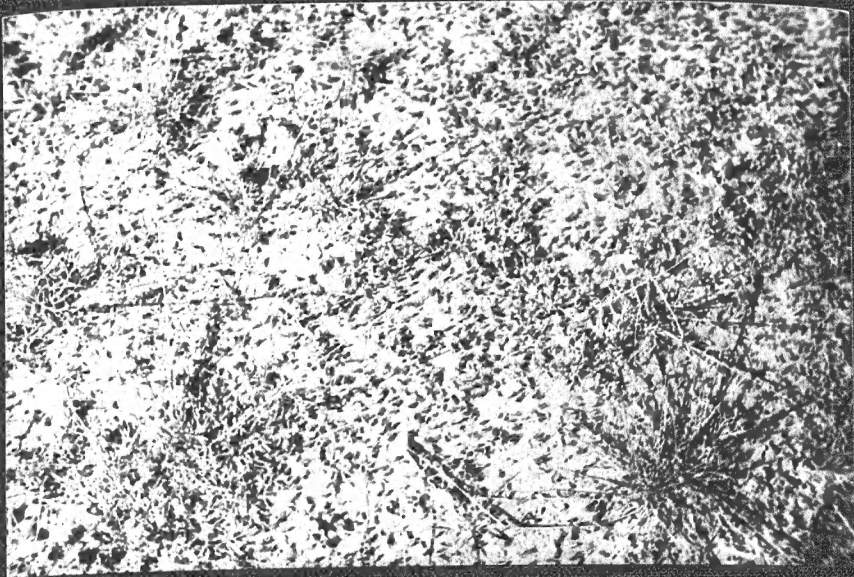
8.

Leica 7: Site 7. Numerous adult  
termitifera 22/9/36. Warrenburg  
foothills.

7.

Leica 6. Site 6, foothills of  
Warrenburg mts, between Gilgandra  
& Coonabarabran. Scattered adult  
termitifera - Kurrajong trees.  
22/9/36.







21.

Leica 19: N. of Walgall. Low  
tufted grass. Scattered hominifera  
adults

18.

Leica 14: Band of hoppers near  
Goonianawa, Coonaharabran  
district.

15.

Leica 17. Close up of scalded  
patch shown in Leica 16,  
showing salt-bush.

17.

Leica 13: Hoppers in Coonab.  
district. Sep. 1936.

14.

Leica 16: Typical egg-bed on  
scalded patch near Goonianawa.  
Sep. 1936.

12.

Leica 12: Creek on banks of  
which hoppers were hatching -  
Coonaharabran district, Sep. 1936.

19.

Leica 15. Same as Leica 14

11.

Leica 11. Band of hoppers in  
Coonaharabran district. Sep. 1936